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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,632	07/16/2003	Takeshi Sano	240111US0	7462
22850	7590	08/11/2006	EXAMINER	
C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			LAM, CATHY FONG FONG	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/619,632	Applicant(s) SANO ET AL.	
	Examiner Cathy Lam	Art Unit 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
 4a) Of the above claim(s) 5-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 24 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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In view of the amendment and remarks filed on April 24th 2006, the pending claims continue to be unpatentable as following:

Election/Restrictions

1. This application contains claims 5-23 drawn to an invention nonelected with traverse in Paper No. July 25, 2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

2. Claims 1-4 and 24-25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kawaguchi et al (US 4568592).

Kawaguchi discloses an electroconductive film adhesive comprised of a polymeric insulative material and electroconductive fibrils.

The electroconductive fibrils are dispersed in the polymeric insulative material (col 2 L 15-20).

The polymeric insulative material can be an elastic material such as silicone resins (col 3 L 12-16). The electroconductive fibrils are wires and whiskers of metal such as copper, carbonized organic fibers, or metal plated glass fibers (col 3 L 40-51).

Each of the electroconductive fibrils having a length of $< 300 \mu\text{m}$ (or $< 200 \mu\text{m}$, or more preferably $15\text{-}60 \mu\text{m}$), and the fibrils have a diameter ranges from 5 to $100 \mu\text{m}$. The aspect ratio is at least 3. Using the narrowest range, the examiner is taking the position that the aspect ratio can be 3-12 (assuming the fibril diameter is $5 \mu\text{m}$), this range clearly meets the present invention.

Claim Rejections - 35 USC § 103

3. Claims 1-4 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chheang et al (US 6884833) or Hanrahan (US 5738936) in view of Kawaguchi et al (US 4701279).

Chheang discloses an anisotropic electrically conductive adhesive composition comprised of a polymeric adhesive component and an electrically conductive material (col 5 L 14-20).

The polymeric adhesive component includes an elastic/rubber material such as styrene-ethylene-butadiene-styrene block copolymers or polyurethane, etc. and a thermoplastic such as silicone resin and photocurable resins (col 6 L 1-8 & L 20-22).

The electrically conductive material is a filler material which may be a metal coated core material such can be a polymer, ceramic or glass, etc. (col 9 L 38-43). The metal coating can be silver, copper, nickel or gold, etc. (col 9 L 46-51). The electrically conductive filler can be characterized in various geometries such as oblong, acicular, flake, etc. (col 10 L 35-38).

Chheang's adhesive composition has a hydrophobic character, that is it has a very low rate of moisture intake (col 7 L 36-39 & col 6 L 34-40). Since Chheang's adhesive composition may include photocurable resins, inherently it is a UV curable material (col 6 L 22).

Hanrahan discloses a thermally conductive composite comprised of a PTFE matrix, an elastomeric material and conductive particles.

The elastomeric material which can be silicone or polyurethane is imbibed into the PTFE matrix (col 3 L 62-65).

Thermally conductive particles such as Cu, Ni, Ag, etc. in the form of metal fiber, metal coated fiber or metal flakes, etc. are embedded within the PTFE/elastomer matrix (col 3 L 52-60).

Since Hanrahan teaches the same silicone resin in the composite, inherently Hanrahan's thermally conductive composite is UV curable and has the humidity-curing property.

Kawaguchi teaches an anisotropic electro-conductive adhesive comprised of a thermoplastic insulating adhesive and conductive particles.

The thermoplastic insulating adhesive comprised of rubber or thermoplastic elastomeric material (col 2 L 33-37). The electrically conductive particles are metal particles such as gold, silver, nickel, etc. and can take the shape of a fibrous or whisker form (col 4 L 14-22).

The electrically conductive particles are dispersed into the thermoplastic insulating adhesive (col 4 L 11-14).

Kawaguchi also teaches that it is conventional that the thermoplastic insulating adhesive includes heat curable resins such as silicone resins (col 1 L 20-24).

All three prior art reference teach an electroconductive adhesive that contains a conductive fiber, that is either conductive metal coated fiber (as in Chheang & Hanrahan) or a conductive fiber (as in Kawaguchi) dispersed in an elastic/silicone resin

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material. The examiner is taking the position that the prior art conductive fibers are equivalent to the claimed acicular conductive filler.

The prior art are silent about the aspect ratio of the fiber strands (or the acicular particle). However, in view of the prior art teachings, it would have been obvious that the prior art conductive fibers would at least have the claimed aspect ratio because a fiber strand normally would have a length at least 5 times more than the diameter.

Response to Arguments

Applicant's arguments and Declaration filed on April 24, 2006 have been fully considered but they are not persuasive.

Applicant states that the advantage of choosing an acicular particle is that a 20% less of the material can be saved for achieving the same conductivity.


The examiner takes the position that choosing the shape and amount of the conductive filler are obvious matter of design choice, one can easily obtain the desired conductivity or resistivity by choosing these variables.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Cathy Lam
Primary Examiner
Art Unit 1775

cfl
July 31, 2006